## EXHIBITIONS AND NOTICES.

### February 8, 1916.

Prof. E. W. MacBride, D.Sc., F.R.S., Vice-President, in the Chair.

The Secretary read the following report on the Additions to the Society's Menagerie during the months of November, December, and January :—

#### November.

The number of registered additions to the Society's Menagerie during the month of November was 53. Of these 32 were acquired by presentation, 16 were received on deposit, 3 in exchange, 1 by purchase, and 1 was born in the Gardens.

The number of departures during the same period, by death and removals, was 150.

Amongst the additions special attention may be directed to :—

1 Leopard cub (*Felis pardus*), from Accra, presented by Hugh M. Willoughby on November 12th.

1 Caracal (*Felis caracal*) and 1 Fettered Cat (*F. ocreatus*), from Berbera, presented by Dr. R. E. Drake-Brockman, F.Z.S., on November 30th.

3 Lund's Opossums (*Didelphys albiventris*) and 1 Wied's Opossum (*D. aurita*), from Minas Geraes, both new to the Collection, presented by Prof. J. P. Hill, F.R.S., F.Z.S., on November 6th.

1 Yellow-rumped Tanager (*Rhamphocœlus icteronotus*), from Ecuador, new to the Collection, presented by Alfred Ezra, F.Z.S., on November 13th.

#### December.

The number of registered additions to the Society's Menagerie during the month of December was 107. Of these 68 were acquired by presentation, 37 were received on deposit, and 2 in exchange.

The number of departures during the same period, by death and removals, was 144.

Amongst the additions special attention may be directed to :—

1 Eyra Cat (*Felis eyra*), 1 Salt-Desert Cat (*F. salinarum*), and 1 Allamand's Grison (*Grison allamandi*), the last two new to the Collection, from Cordova in the Argentine, presented by W. A. Smithers, C.M.Z.S., on December 16th.

2 Mongolian Sousliks (*Citellus mongolicus*) and 2 Sand-Hamsters (*Cricetulus griseus*), the latter new to the Collection, and

3 Great Eagle Owls (*Bubo bubo*), from Mongolia, presented by A. L. Hall on December 10th.

### January.

The number of registered additions to the Society's Menagerie during the month of January was 57. Of these 43 were acquired by presentation, 8 were received on deposit, 3 in exchange, and 3 were born in the Gardens.

The number of departures during the same period, by death and removals, was 123.

Amongst the additions special attention may be directed to :—

1 Anoa (*Anoa depressicornis*) ♀ from Celebes, and 1 Père David's Deer (*Elaphurus davidianus*) ♂ from Northern China, presented by H.G. The Duke of Bedford, K.G., Pres.Z.S., on January 20th and 26th.

2 Argentine Frogs (*Leptodactylus mystacinus*) and 6 South-American Sand-Toads (*Bufo arenarum*) from Cordova, Argentina, new to the Collection, presented by Wilfred A. Smithers, C.M.Z.S., on January 31st.

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Mr. R. E. Holding exhibited the skull of a Roebuck, showing an unusual deviation in the direction of the suture of the right frontal bone, which extended considerably beyond the median line towards the left.

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Mr. C. Tate Regan, M.A., F.Z.S., exhibited, by means of lantern-slides, a series of drawings of larval Fishes from the Antarctic.

The development of *Myctophum antarcticum* was compared with that of the northern *M. glaciale*, and larval Nototheniidæ were described.

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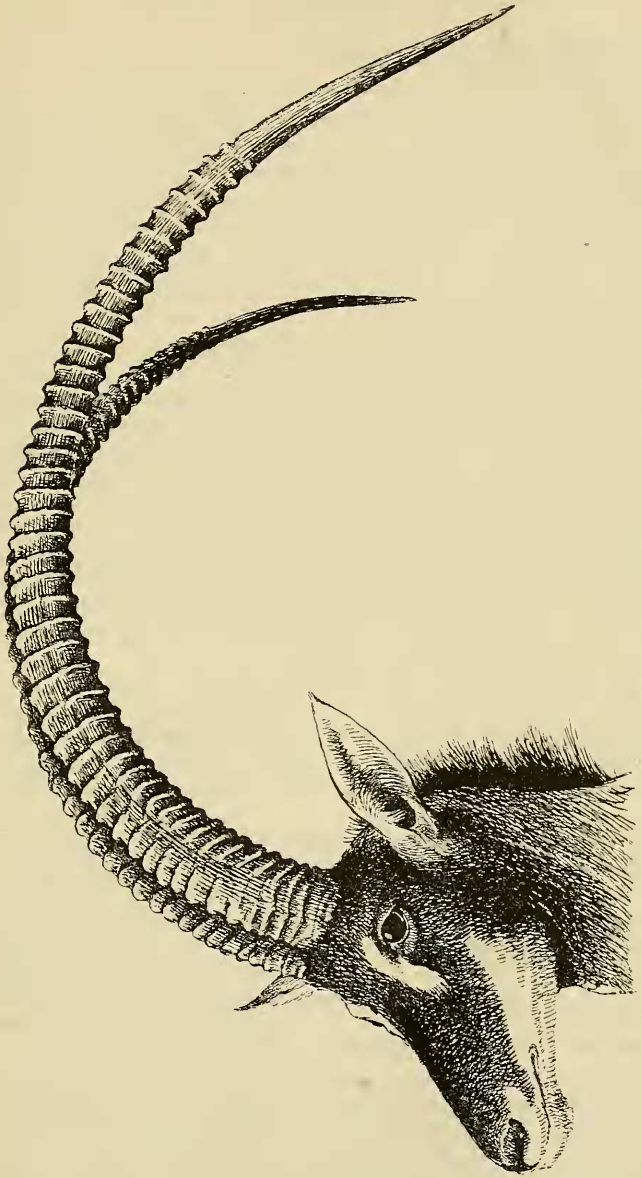
### *A new Sable Antelope from Angola* *.

Mr. Oldfield Thomas, F.R.S., F.Z.S., exhibited the scalp and frontlet, with horns, of a male Sable Antelope from the Luando River, Angola, which had been presented to the National Museum, together with a female mask and horns, by Mr. H. F. Varian.

This magnificent animal differed widely from the ordinary Sable, both by its immensely finer horns, and by the characters

* [The complete account of the new subspecies described in this communication appears here; but since the name and a preliminary diagnosis were published in the 'Abstract,' No. 151, 1916, it is distinguished by the name being underlined.—Editor.]

Text-figure 1.



Head of Angolan Sable Antelope (*Hippotragus niger variani*).

of its face-marking, and Mr. Thomas proposed to distinguish it as a new subspecies under the name of

HIPPOTRAGUS * NIGER VARIANI †.

Thomas, Abstract P. Z. S. 1916, p. 1 (Feb. 15th).

The horns of the type measured 57 inches (1445 mm.) in length along the front curve, by 11 inches (280 mm.) in circumference at the base, and 27 inches from tip to tip. Their transverse ridges, which were extremely well marked, were 47 in number. Good Rhodesian and Nyasa Sable horns were about 45 to 50 inches in length, while those of the East African Sable were not known to reach 40 inches. The female horns of *H. n. variani* were 35 inches (890 mm.) in length by 7 inches (179 mm.) in circumference.

A skull of this form, which had been lent to Mr. Thomas for comparison, measured 480 mm. in length, 170 mm. in breadth, with an upper tooth-row of 122 mm., these dimensions in a skull of the ordinary Sable being respectively 435, 160, and 114 mm.

But, apart from its splendid horns, the most striking character of *H. n. variani* was the practically complete obliteration of the usual prominent white streaks running from the anteorbital white tufts forwards to the sides of the muzzle, the whole of the upper side of the face being therefore deep black, with the exception of the anteorbital tufts themselves, which were white as usual. Along the ordinary positions of the white streaks a few lighter hairs were perceptible, these being rather more numerous in the female.

The dark parts of the head were of the deepest black, the light parts buffy whitish or cream-colour, except the middle line of the interramia, which was white. Occiput mixed black and ferruginous-tawny. Ears, as usual, rich tawny outside, and white within. The face of the female was blackish brown, and the crown and occiput tawny.

It was with considerable hesitation that Mr. Thomas had only distinguished this Sable as a subspecies, and not as a species, so striking was the difference from ordinary Sables in both horns and marking; but the presence of light hairs along the usual position of the facial streaks, and the fact that in *H. n. kirkii* (figured by Matschie as *H. n. kauffmanni*), the nearest neighbour of *H. n. variani*, the dark stripes were broader and the light stripes narrower than in *H. n. niger*, showed that these markings were variable and plastic, and did not indicate any really

* This generic name was used provisionally pending the decision of the authorities as to the names suggested in 1914 for fixation by Fiat. Should *Hippotragus* be rejected, the technical name of the genus would be still in doubt until the question of the validity of *Egocerus*, Desm. 1822, *nec Aegoceros*, Pall. 1811, was settled, a very knotty point. A law covering this latter case had been proposed by the Linnean Society's Committee on Nomenclature in 1906, and submitted to the International Congress, who, however, only accepted it as applying to specific names, a restriction much to be regretted.

† Type. Face, skin, and frontlet with horns. B.M. 16.2.21.1.

essential difference, such as to render unlikely the possibility that intermediates might yet be found.

To this subspecies there presumably belonged the well-known 61-inch horn in the Florence Museum, which had long been a wonder to all sportsmen, who had only had for comparison with it the relatively short horns of *H. n. niger*, those of the E. African *H. n. roosevelti* being still shorter.

Bocage's *Hippotragus niger*, in his papers on Angolan Mammals, was of course also *H. n. variani*, but his only material was a single pair of horns, 51 inches in length, brought home from the "interior of Mossamedes" by Welwitsch.

Mr. Varian had taken great pains to secure specimens of this animal, and to obtain information about its range, and it was with much pleasure that Mr. Thomas had named it in his honour. Mr. Varian had also taken steps to induce the local authorities to give it protection, which, in view of the considerable sums given for such horns as it carried, would be much needed to save it from extermination, now that its existence had become known to sportsmen and hunters.

Judging by the greater length of the skull, it would, no doubt, prove that *H. n. variani* not only carried longer horns, but was larger in all dimensions than the true Sable. It was hoped that a complete specimen of this splendid addition to the list of African Antelopes would soon be obtained for the National Museum, whose warmest thanks were already due to Mr. Varian for the donation of the fine trophy now exhibited.

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*Antlers of a Virginian Deer affected by Cancer.*

Mr. R. I. Pocock, F.R.S., F.Z.S., Curator of Mammals, exhibited the successive Antlers of a Virginian Deer (*Odocoileus americanus*) that had died of cancer in the Society's Gardens, and made the following remarks:—

"The male Virginian Deer (*Odocoileus americanus*) referred to in Prof. Plimmer's report (see p. 83, **16**) as having died of cancer, was purchased as a young animal on Jan. 17th, 1911, and died Dec. 27th, 1915. The following accurate records of its successive antlers were kept during the five years that it lived in the Gardens:—

1. The first antlers, shed March 15th, 1912, were simple snags about $\frac{1}{2}$ inch in length.
2. The second antlers, shed March 23rd, 1913, measured $10\frac{1}{4}$ inches along outer curve, were simply forked at the tip; the supernumerary tine on the back of the beam measured just under $1\frac{3}{4}$ inch, and the two antlers together weighed $5\frac{1}{4}$ oz.
3. The third antlers, shed March 24th, 1914, measured 9 inches, were simple, carrying no supplementary tine. The two together weighed $4\frac{1}{4}$ oz.

4. The fourth antlers, shed March 15th, 1915, measured $7\frac{3}{4}$ inches; the left antler was simple, the right was forked, the supplementary tine measuring $1\frac{1}{4}$ inches. The two antlers together weighed $3\frac{3}{4}$ oz.
5. The fifth antlers, unburnished, were taken off the head of the dead animal on Dec. 27th, 1915. The longer of the two measured $8\frac{1}{8}$ inches. The right was simple, the left forked, the supplementary tine measuring $\frac{3}{4}$ inch. The two together weighed $3\frac{3}{4}$ oz.

Thus, although there was a great and, so far as I am aware, normal increase in size of the second antlers as compared with the first, the third, fourth, and fifth antlers showed no corresponding elaboration, but, on the contrary, degeneration, the third being shorter and lighter than the second, and producing no tines. The fourth also were lighter and shorter than the third. Nevertheless, the right one produced a supplementary tine which, however, was shorter than the supplementary tines of the second pair. The fifth antlers in the matter of length showed a slight recovery as compared with the fourth, and the two together acquired the same weight, but the supplementary tine was still shorter, and the dried integument adhered to the antlers instead of peeling off and leaving them normally burnished. Since, in Prof. Plimmer's opinion, the growth of the cancer from which this Stag died was probably a gradual process extending over a few years, it seems justifiable to infer, in the absence of any other obvious cause to account for the fact, that degeneration of the antlers was attributable to this disease. It may be added that the testicles, which Prof. Plimmer particularly examined at my request, were unaffected by the cancer, and were normal except for the absence of ripe spermatozoa."

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## February 22, 1916.

Dr. A. Smith Woodward, F.R.S., Vice-President, in the Chair.

The Rev. H. N. Hutchinson, M.A., F.Z.S., exhibited a number of drawings prepared by Mr. T. W. Parfitt of restorations of various extinct animals.

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Mr. C. Tate Regan, M.A., F.Z.S., gave a lantern-exhibition illustrating the breeding-habits of a Siamese Fighting-Fish (*Betta splendens* Regan) and the climbing-habits of a Cat-fish (*Arges marmoratus* Regan) from the Andes of Colombia.

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*The Tympanic Bulla in Hyænas.*

Mr. R. I. Pocock, F.R.S., F.Z.S., Curator of Mammals, gave an exhibition, illustrated by lantern-slides, to show the presence of two chambers in the tympanic bulla of the Hyænidæ, and remarked:—

"In his paper upon the base of the skull in the Fissipede Carnivora (P. Z. S. 1869, pp. 4–37), Prof. Flower laid stress upon the presence or absence of a bony partition dividing the cavity of the tympanic bulla into two compartments in the Æluroidea. Although on general grounds he followed Turner* in classifying the Hyænas with the Felidæ and Viverridæ, he described the bulla of the Hyænas as 'perfectly simple within, without trace of division into compartments' (p. 26). Subsequently, Mivart (P. Z. S. 1882, p. 199) wrote 'though there is no septum, yet I have detected in both species of *Hyæna*, inside the auditory bulla, two osseous ridges or laminæ, which, if further developed, would divide off a small anterior chamber from the much larger and externally more prominent posterior portion.' These two papers appear to be the sources whence subsequent authors, like Weber, Sedgwick, and others, have derived their information; Weber, following Mivart, described the partition as low, and Sedgwick, following Flower, recorded it as absent.

Both Flower and Mivart were quite mistaken; the bulla in all Hyænas is divided by a strong partition into a larger outer or anterior and a smaller inner or posterior chamber.

It may be recalled that in the Felidæ and Viverridæ the septum rises from the floor of the bulla and typically extends upwards till it touches the periotic (petrous) bone. This partition may arise just below the lower rim of the external auditory meatus, or it may arise far away from that point. In the former case the antero-external chamber is small, in the latter it is large as compared with the postero-internal or posterior chamber; but the free edge of the partition always reaches, or is situated close to, the same portion of the periotic, namely, the portion which is pierced by the *fenestra rotunda* of the inner ear, and it is always just at this point that there is a passage or orifice between the two chambers.

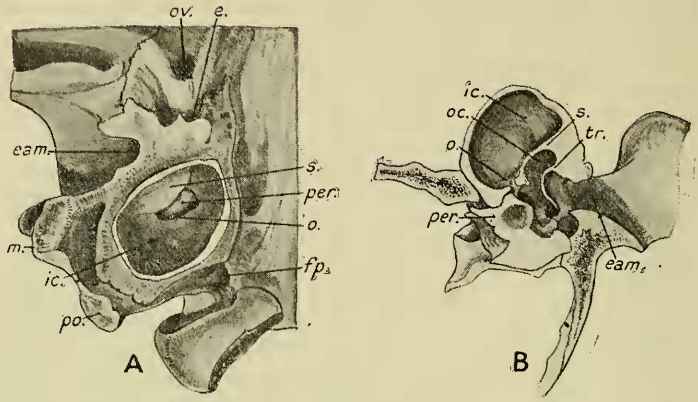
The outer chamber is itself partially divided from the external auditory meatus by a horseshoe-shaped ridge or crest, the tympanic ring, which is well shown in Flower's figure of the section of the bulla of the Tiger (text-fig. 1, B, *tr.*).

When the bulla of the inverted skull of the Hyæna is opened

* P. Z. S. 1848, pp. 63–88. Flower's paper is little more than an amplification of this valuable paper by Turner, so far as the Carnivora are concerned. It does not seem, however, that Turner was acquainted with this partition, his mention of the division of the bulla into two parts referring to the superficial groove marking the position of the partition.

anywhere between its anterior extremity and the paroccipital process, it presents the appearances which misled Flower and

Text-figure 1.




(Copied from Flower's figures, P. Z. S. 1869, pp. 16–17.)

A. Right half of the base of the skull of the Tiger (*Felis tigris*) with the bulla laid open to expose the inner chamber (*i.c.*), with the septum or partition (*s.*) ascending to the periotic (*per.*), and the orifice (*o.*) leading from the inner to the outer chamber between the septum and the periotic; *e.*, internal orifice of eustachian tube; *ov.*, foramen ovale; *fp.*, foramen lacerum posticum; *po.*, paroccipital process; *m.*, mastoid; *eam.*, external auditory meatus.

B. Section of the auditory bulla of the Tiger. *ic.*, inner chamber; *oc.*, outer chamber with the orifice (*o.*) between the two and the septum (*s.*) dividing them; *tr.*, half the tympanic ring in the outer chamber; *eam.*, external auditory meatus; *per.*, periotic.

Mivart. The greater part of the space is occupied by a single large cavity, which opens by a wide cleft in front into a smaller

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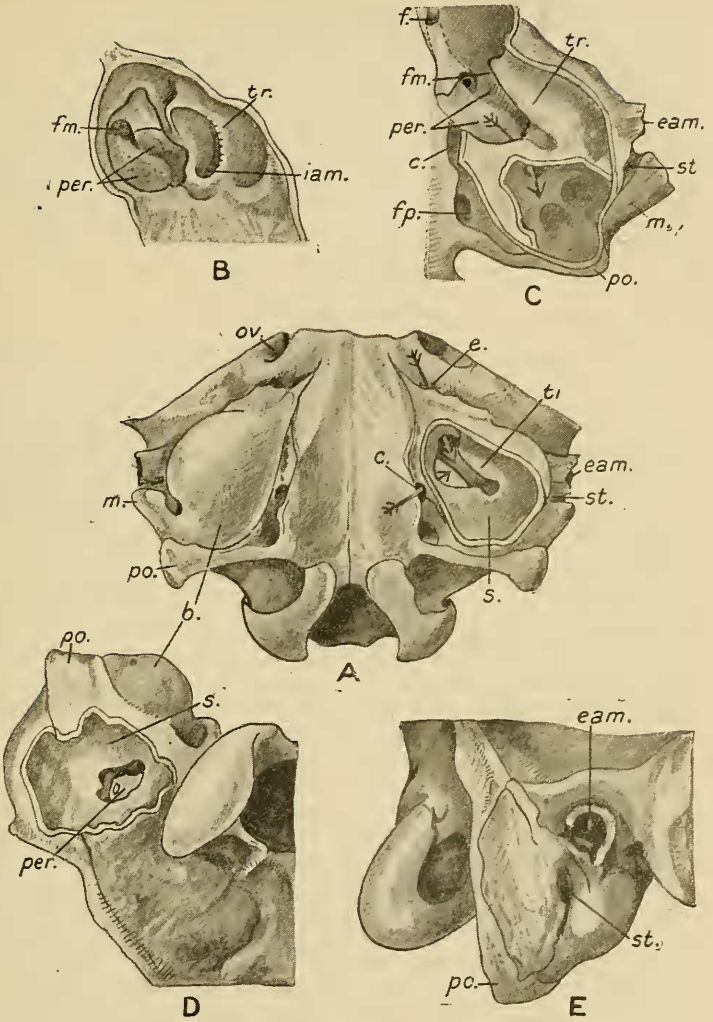
Description of Text-figure 2 (*continued*).

C. Left bulla enlarged, with the posterior portion of the septum, marked *s* in fig. A, cut away to show the cavity of the inner chamber and the antero-internal portion of the bulla also cut away, and the carotid canal (*c.*) laid open; the passage leading from the outer to the inner chamber between the periotic (*per.*) and the septum marked by an arrow. *f.*, foramen piercing sphenoid and corresponding with the anterior carotid foramen of Mongooses; *fp.*, foramen lacerum posticum. Other lettering as in figs. A & B.

D. Part of the right side of the skull viewed from the occipital aspect, with the bulla laid open from behind to show the inner chamber with the periotic (*per.*), carrying the fenestra rotunda, partially blocking the orifice between the two chambers divided by the septum (*s.*). Other lettering as in fig. A.

E. Right bulla of the Spotted Hyæna (*Crocuta crocuta*). A line drawn between the paroccipital process (*po.*) and the stylomastoid foramen (*st.*) would mark the edge of the partition between the two chambers.

Text-figure 2.




A. Base of the skull of the Striped Hyæna (*Hyæna hyæna*) with the left tympanic bulla opened. *b.*, right tympanic bulla; *c.*, carotid canal, its course shown by an arrow; *e.*, inner orifice of eustachian tube, the course of which is shown by an arrow; *eam.*, external auditory meatus; *s.*, partition or septum between the two chambers; *tr.*, tympanic ring; *st.*, stylomastoid foramen; *po.*, par-occipital process; *m.*, mastoid; *ov.*, foramen ovale.

B. Anterior portion of left bulla enlarged and viewed obliquely from the inner side to show that the crest mistaken by Mivart for a low septum is the tympanic ring (*tr.*), with the internal auditory meatus (*iam.*); *per.*, periotic; *fm.*, foramen lacerum medium, exaggerated in size.

cavity continuous with the eustachian tube and the external auditory meatus. This cleft deeply notches the floor of the large cavity, and the floor slopes backwards and upwards from the cleft, through which a portion of the periotic is visible, to the paroccipital process. The edges of the cleft are no doubt the 'two osseous ridges or laminæ which, if further developed, would divide off a small anterior chamber from the much larger . . . . posterior portion,' described by Mivart. That is true; but the two chambers would not correspond to the two present in the Tiger, for the outer of the two laminæ is the tympanic ring, and is therefore not the homologue of the partition dividing the Tiger's bulla, as Mivart supposed. The 'small anterior chamber' of the bulla, which is exceptionally large in the Hyænas, is merely the anterior part of the tympanic chamber.

Whether Flower correctly interpreted this lamina as the tympanic ring or not, does not appear; but he may be given the benefit of the doubt. Nevertheless, both he and Mivart failed to detect that where the apparent floor—or roof, if the skull be held in its normal position—of the bulla abuts against the periotic, there is quite a distinct orifice through which a probe can be passed backwards into a second chamber lying behind and below the apparent floor of the bulla. This chamber can be laid open by cutting away the paroccipital bone externally to the occipital condyle. It will then be seen quite clearly that the bony plate, regarded by Flower and Mivart as the floor (or roof) of the bulla, is, in reality, a partition dividing the bulla into two chambers, and passing from the periphery of the cavity of the bulla to the periotic, exactly as is the case in the Tiger, allowance being made for the origin of the partition much farther back than in that Feline. It is not, however, much farther back than in some other Æluroids, e. g., *Cynictis*.

Nevertheless, it is not certain, in my opinion, that the partition in the Hyænas is the exact homologue of that of the Cats. The inner wall of the posterior chamber of the bulla in Æluroidea is often strengthened by bony crests or ridges of varying height, and one such crest, curving round the back of the chamber and occupying the position of the partition, where it rises from the bulla near the paroccipital, in *Hyæna*, is present in two immature skulls of *Proteles*, in addition to the normal vertical partition which in these specimens is thin and imperfectly ossified or fenestrated. The interest of this fact lies in the circumstance that *Proteles* in several of its cranial characters occupies a position midway between *Hyæna* and the Mungotinæ. Hence it is possible that in *Hyæna* the normal partition has been replaced by a secondary partition of stronger growth. However that may be, it is quite clear that the bulla of *Hyæna* can no longer be described as undivided.

Two other points of systematic importance may be alluded to: the bulla in Hyænas is fused anteriorly to the basisphenoid, as

in the Cats, and beneath its anterior end, and concealed by it, there is a foramen piercing the sphenoid and remote from the foramen lacerum medium. This sphenoidal foramen seems to correspond exactly with the exposed foramen by which the internal carotid artery in the Mongooses enters the skull, after traversing the bulla. In the Hyænas, nevertheless, this artery is said by Mivart to enter the skull by the foramen lacerum medium, the existence of a carotid foramen in the sphenoid being denied by that author. The foramen, nevertheless, persists, as it does in *Proteles*, whether the carotid enters it or not."

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## March 7, 1916.

The Marquess of Sligo, Vice-President, in the Chair.

Mr. Harry K. Eustace gave a bioscope exhibition of films illustrating his experiences as a big-game hunter and cinematographer in East Africa, showing the natives and the characteristic animals of that country in their natural state.